The rejection of the claims and the Piety and Van Voorhis references were discussed.

During the interview, Applicant noted that the Examiner's new ground of rejection over Piety and Van Voorhis depends upon the Examiner's interpretation of the statement at col. 9 lines 39-40 of Piety, that measurements might involve "both a vibration sensor and a tachometer", and the "HPC 32 may prompt the sensor unit 40 to collect both types of machine operating characteristics, or the HPC 32 may prompt the sensor unit 40 to collect only one type of operating characteristic." The Examiner's rejection is based upon the view that Piety is describing a single housing containing both a vibration sensor and tachometer.

Applicant strongly disagrees with this reading of Piety. The use of a vibration sensor and tachometer is elaborated later in col. 9, where the tachometer is identified as item 128 in Fig. 1, "mounted on or near the machine 12 and communicat[ing] wirelessly with the sensor unit 40." As seen clearly in Fig. 1, the tachometer 128 is separate from the sensor unit 40. This is reinforced at col. 10, line 26, which states that the "sensor unit 40 *communicates* with both the HPC 32 and the tachometer 128", and at col. 10, lines 44 and 49 which also reference "*communication* ... between the hand-held sensor unit 40 and the tachometer 128" (emphasis added). The need for "communication" confirms the separateness of the sensor unit 40 and tachometer 128.

Applicant submits that a careful reading of Piety, including all of its disclosure in context, reveals that the Piety system is a multi-unit system, and the intention is that the HPC 32 will be separate from the sensors it uses; the HPC 32 is strapped to the operator's belt, and communicates with several other units in separate housings to obtain data. As shown in Piety Fig. 1, the operator thus has many devices in separate housings to handle.

During the interview, the Examiner questioned whether it would be a simple matter of design choice to incorporate the separate tachometer 128 shown in Piety into the housing of the sensor 40 shown in Piety. In response, Applicant's representative noted that the resulting hypothetical device would then have to meet two frequently incompatible mechanical constraints. First, the device would need to be positioned to collect optical information continuously, e.g., continuously target a laser on a rotating reflective target to generate tachometer readings (as recited in the present claims 8 and 20). Second, the same device would simultaneously need to hold an accelerometer in contact with a machine being measured, to measure vibration signals. It would be difficult, if not impossible, to position the Examiner's hypothetical combined device to achieve these constraints. Applicant submits that for this reason, it would not be a simple matter of design choice to incorporate tachometer 128 into the housing of sensor 40; rather, such a step would be contrary to good design.

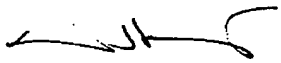
Applicant submits that the claims as previously presented are distinguishable from the cited references, for the

reason that they clearly recite a common housing with an optical system and signal processing including an analog to digital converter, and digital signal processing. Piety does not show both an optical system and vibration signal processing in one housing, nor is such an obvious alteration of Piety. To further clarify this point of distinction, Applicant is submitting amendments to the independent claims stating that "the data collector is an integrated device with analog and digital signal processing and an optical system", thus making the integrated nature of the device unambiguously clear.

In view of the above, Applicant submits that the claims are patentable over the references cited, and requests early transmission of a Notice of Allowability.

If any petition for extension of time is necessary to accompany this communication, please consider this paper a petition for such an extension of time, and apply the appropriate extension of time fee to Deposit Account 23-3000. If any other charges or credits are necessary to complete this communication, please apply them to Deposit Account 23-3000.

Respectfully submitted,



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Version With Markings to Show Changes Made

1. A data collector, comprising
a housing,
a vibration signal input on said housing,
an analog to digital converter within said housing connected to said vibration signal input, converting a vibration signal received at said vibration signal input to a digitized vibration signal,
an optical system within said housing, said optical system receiving light from outside said housing,
a receiver circuit converting said received light to a digital signal, and
a digital signal processing circuit connected to said analog to digital converter and said receiver circuit, and receiving, storing or processing said digitized vibration signal and said digital signal converted from said received light, in real time, for the purpose of predictive maintenance,
whereby the data collector is an integrated device with analog and digital signal processing and an optical system.

13. A method of collecting data for the purpose of predictive maintenance using a data collector, comprising
receiving a vibration signal into a housing of said data collector, and converting said a vibration signal to a digitized vibration signal withing said housing,
receiving light from outside said housing into said housing, and converting said received light to a digital signal, and
simultaneously receiving, storing or processing said digitized vibration signal and said digital signal converted from said received light,
whereby data is collected using an integrated device with analog and digital signal processing and an optical system.